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ABSTRACT

Two related studies investigated (1) the extent to which native language input to five Japanese children was varied based on the children's age, and (2) the effectiveness of adult Japanese second language input to a three-year-old American child during a one-month period in Japan. In the first study, interactions of adult-child dyads were compared for children aged 2 years (n=3) and 4 years (n=2). Results suggest the younger children received more cues making native language linguistic patterns discernible, including shorter intonation units with ending rising pitch and more frequent use of bracketed utterances. The second study found the input a native English-speaking 3-year-old received was similar to that received by his native Japanese-speaking cousin: short intonation units with unique discourse devices such as a sentence-final particle "ne" and rising pitch. During 34 days, the child acquired several nouns, verbs, and other vocabulary, some words and phrases, a basic negative form, and various sentence-final particles often found difficult by non-native adults. After a month, the child was able to initiate a conversation with a native Japanese speaker, calling attention and changing the discourse topic by himself. Transcriptions and translations are appended. Contains 31 references. (MSE)

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Discourse analysis of adult-child conversations: The comparison of L1 and L2 input in Japanese

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Discourse analysis of adult-child conversations: The comparison of L1 and L2 input in Japanese

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The purpose of this study is two-fold: 1) to examine age differences in the extent to which the L1 input addressed to 5 Japanese children was modified, and 2) to investigate the efficacy of L2 input a three-year-old nonnative child received during his one-month stay in Japan. From the perspectives of language input in both first language acquisition (FLA) and second language acquisition (SLA), the study compared the two types of adult-child interaction: the L1 discourse between Japanese adults and children of two age groups (i.e., adults with 2 year-olds and adults with 4 year-olds), and the L2 discourse between Japanese adults and an American child. Although the findings from this study indicate certain advantages of L2 input in this particular case, they lack strong evidence for age-specific differences between the input to the two-year-olds and the input to the four-year-olds. Despite research limitations, it is hoped that the study has provided some valuable insights regarding early SLA and FLA in Japanese.

INTRODUCTION

Language input is a factor which has been implicated in the process of first language acquisition both by theoretical orientation and by empirical observation. In a number of studies on mother-child discourse, age-specific changes in the nature of language input have been identified. Further more, scaffolding aspects of "motherese" (i.e., adults' language input addressed to children) have been pointed out by quite a few researchers of L1 acquisition. Also, in Pinker's (1987) discussion of "the bootstrapping problem," it is hypothesized that adult input to young children contains prosodic, semantic and syntactic cues which 'bootstrap' their grammatical analysis of the L1. Originally I intended to explore the role of input in Japanese children's language acquisition, by combining an L1 perspective of motherese with a discourse analysis of adults' input. However, finding some interesting aspects of the L2 input my English-speaking child received in his learning of Japanese, I decided to compare the L1 input data with the L2 input data obtained from the same Japanese adults. Approximately six hours of face-to-face, naturally occurring, adults' conversations with 5 children (3 two-year-olds and 2 four-year-olds) were transcribed and analyzed within the framework of intonation unit analysis (Chafe 1993; 1994). In contrast, about twenty hours of adults' conversations with a nonnative child were recorded and examined in the same method of discourse analysis.

PREVIOUS STUDIES

From the first language acquisition (FLA) perspective, nurturing aspects of motherese have been discussed: caretaker's speech is fine-tuned for young children's first language acquisition (e.g., Bruner, 1977), typically containing modification such as extensive use of present tense, concreteness of vocabulary and gestures highlighting the here-and-now in the event (e.g., Snow, 1977). Also, many ethnographic studies report that motherese is a culturally bound phenomenon, whose characteristics vary across different speech communities (e.g., Miller, 1982 for the working class in South Baltimore; Ochs, 1985 for children in Western Samoan communities; Schieffelin, 1990 on the Kaluli speech community in Papua New Guinea; Kulick, 1992 on the Gapun village in Papua New Guinea: For an in-depth discussion of this type of FLA research called 'language socialization', see Ochs and

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Shieffelin 1995). Furthermore, Pinker (1987) discusses several bootstrapping hypotheses (e.g., the prosodic bootstrapping hypothesis in which children are thought to figure out L1 syntactic boundaries based on the prosodic contour of input) which have been proposed by other FLA researchers. He argues that a very important issue in FLA is to find what is in the input that 'bootstraps' the child to arrive at correct L1 grammar. For him, a viable theory of language acquisition has to account for what it is in parental speech that triggers the child's knowledge of linguistic constraints. However, Pinker (1990) stresses that particular manners of parental speech (e.g, carefully modified or unmodified speech) do not directly contribute to children's progress in L1 acquisition (p. 218).

From the second language acquisition (SLA) perspective, the type of input which young children receive has been suggested as a potential variable accounting for age-related differences in second language acquisition. For instance, some discourse studies, such as Hatch's (1976) and Snow's (1983) indicate that conversations involving children characteristically differ from those involving adults in SLA: native speakers tend to provide child non-native speakers with more 'here-and-now' discourse (i.e., use of context-clear, immediate topics) and clearer, less complex input in the L2 from which the child learners attend to its syntax effectively. Larsen-Freeman and Long (1991) also point out that, compared to adult L2 learners, children are more likely to engage in language play with their native-speaker peers, from whom they get L2 phonological coaching.

Of course, language input is only one of many interrelated factors contributing to acquisition of an L1 or L2. As other researchers have argued, children's innate language knowledge, human-specific predisposition for language and cognition, and memory development need to be brought into the whole picture. For instance, Chomsky (1988) asserts that the innate knowledge of language has to "be awakened and enriched in the course of the child's interactions with the human and material world" (p. 34). In terms of human-specific endowment for language learning, researchers such as Macnamara (1972) and Markman (1993) insist that human infants are equipped with cognitive predispositions to learn a language. Dempster (1981) reports that memory span doubles between 5 and 12 years of age. Similarly, Braten (1992) maintains that there is an interrelationship between children's on-going memory development and age-related change in mother-child verbal interaction, thus arguing for the effect of caretaker's speech modification. However, this study limits itself to one environmental factor, "language input," from both FLA and SLA perspectives. My research question, therefore, is what aspects of speech addressed to young language learners (both L1 and L2 speakers) are similar, particularly in the Japanese discourse community. More specifically, supposing that L1 input addressed to a child native speaker is somewhat tailored to facilitate his/her FLA, will L2 input be modified for a nonnative child in a similar scaffolding manner?

RESEARCH METHODOLOGY

Subjects and Data Collection Procedures

First, to see whether Japanese caretakers regularly modify their speech for younger children more often than for older ones, I recorded Japanese adults' speech to two groups of children: children aged two and children aged four. The total of 4 hours and 45 minutes of interaction were audiotaped during the period of June 1 to June 23, 1995. Five normally developing children aged from two to four and ten adults conversing with them were selected as subjects for this set of data. Table I | Appendix I | shows the overall background of each child subject. All the families resided in the area of Yokohama city, Kanagawa, Japan. Table II | Appendix I | presents brief information on the adult interlocutors involved in each conversational setting. In that table, the adult speakers are described in terms of their relationship with either the child subject or the other adult participant in the conversation.

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Second, I collected approximately 20 hours of audiotaped conversations to explore the role of L2 input that plays in the Japanese acquisition of a three-year-old nonnative child, Sai. Born to a Japanese mother and an American father, Sai had grown up in Arizona, speaking English dominantly. His mother had spoken to him in English as his father had. Prior to his trip to Japan, he had only a limited command of Japanese, being able to use and understand just a few expressions in the language. In the summer of 1995, Sai traveled across the ocean to visit his relatives in Japan with his mother, who conducted this study. The child's verbal interaction with his Japanese relatives were recorded for about a month, from May 23 to June 25, 1995. Table III [Appendix I] describes the relationships among all the interlocutors with whom the child interacted.

Finally, in order to access the validity of data interpretation, the adult subjects were interviewed as to whether or not they consciously modified their speech to the children.

Data Analysis

To investigate characteristics of Japanese L1 and L2 input, I employed Chafe's (1993, 1994) approach of prosodic discourse analysis. The reason for selecting a prosodic analysis in particular is the tendency of children to heavily rely on prosodic information in input from infancy (Morgan & Newport, 1981; Stern et al., 1983; Furrow, 1984). Cooper & Paccia-Cooper (1980) have found that phrase boundaries (in English) are signaled by acoustic cues such as pausing, lengthening, and falling pitch. Similarly, Chafe (1993, 1994) has proposed that intonation units (or IUs) are discourse units of cognitive significance, whose boundaries are signaled by prosodic cues such as pitch change, pausing and voice quality. Therefore, suppose that the child uses such prosodic regularities to infer language-specific patterns (e.g., syntax), it is worth focusing on acoustic properties in the input.

I choose Chafe's model because Chafe has also addressed the important issue of the speaker's "consciousness." For instance, Chafe (1974) claims that "consciousness itself is a wholly private affair, to which no outside observer has direct access" (p. 122). As one of "extra-linguistic" factors, Chafe refers to the speaker's consciousness of who is listening in a discourse. Chafe (1994) also maintains that intonational contours and other prosodics point to various properties of the speaker's consciousness. Therefore, by tracing prosodic characteristics in the input, we may be able to see how such caretaker awareness functions in Japanese. Furthermore, Chafe (1994) defines the intonation unit (IU) as "a unit of mental and linguistic processing" (p.55). If this is true, we can infer that the difference in IU length in the input may indicate the adult speaker's sensitivity to the limited processing capacity of young listeners.

To examine the nature of Japanese adult-child discourse, I paid particular attention to the caretakers' use of sentence-final particles and other expressions at the end of their speech. It is primarily because, as Maynard (1989) argues, Japanese conversation tends to be bracketed with non-obligatory, yet discursively important, particles such as *ne*. Similarly, Iwasaki (1994) points out that the Japanese language has some lexical items and sentence-final tokens which express the speaker's "sensitivity towards the addresses in the speech situation" (p.4). According to him, these expressions include particles such as *sa*, *ne*, and *yo*, as well as other sentence-final words such as *deshoo* and *janai*. In addition, he claims that these words are uttered with rising intonation. Indeed, the Japanese sentence such as "Kore wa takai wa ne /" (This is expensive) appeals at the interpersonal level, indicating that the speaker expects the listener(s) to comply.

Among the 345 minutes of recordings, only the periods of continuous verbal interaction between an adult and a child were transcribed. Therefore, the child's private speech, adult-adult or child-child conversational occasions was ignored in data transcription. The transcription system used is that of DuBois et al. (1993), which expands the notations originally made by Chafe's prosodic approach. A brief description of DuBois et al. system is attached at the end of the paper [Appendix II].

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SAMPLE DATA

As shown in Table II, there are five settings in which each child engaged in verbal interaction with adults. The settings are further divided into scenes based on a set of conversational exchanges between the child and the same adult interactant(s). It means that there was a time interval between the scenes of each setting, and that some children changed their partners from one scene to another. To describe the context of each scene, I present situational information prior to the text. The utterances on the left were actual speech in Japanese, transcribed for intonation units (IUs) and prosodic characteristics. A long IU which does not fit within a single line is displayed over the two consecutive lines with the ampersand marker, &, as is used in DuBois et al.'s transcription system. The text on the right side is the translated version of the Japanese data. Due to limited space, only one sample from each child's L1 interaction is presented here. As for the L2 discourse data, samples are given at the end of the paper [Appendix III].

[L1 Sample Data #1: Adult-**Young** child (Yu-kun) discourse]

A two-year-old boy, Yu-kun (Y), grabbed an adult's purse. His grandmother (G) and the grandmother's sister (S) were both interacting with the child.

G:	(talking to S)	
	A, iino iino_	Oh, don't do that.
	Konoko ne okaneno koto wa	This child gets crazy about money,
	& ne yokushitteru kara ne --	so (don't give him any money),
	[@]	[laugh]
S:	[Ja], ^atode ne /	Well, maybe later, then.
G:	Muko= ittara ne/	When we get there,
	Baba-chan ga ne/	I will hand you
	Okane watasu kara ne/	some money,
	Soshitara kaou ne/	Then, you can buy some
	!Ne/	You get it?
Y:	(looks at the grandma)	

[L1 Sample Data #2: Adult-**Young** child (Ma-kun) discourse]

A two-year-old boy, Ma-kun (MA), was at the dinner table with his mother (M) and father (F) at home.

M:	Niko-niko na no/	Smiley-smile, you say?
	Oishii kao/	(That's) a 'tasty' face'?
	@ @	[laugh]
MA:	(0) Niko-niko <xx> _	Smiley-smile <unintelligible>
M:	... Ja ne-	Well, let's see -
	Okkotta kao wa/	How about an 'angry' face?
MA:	... O=ko=ra= --	Angry --
	Niko-[niko=]	Smiley-smile
M:	[Okotta] kao niko-niko na no/	You mean, an angry face is a smily face?
	... [Naite-]	Cry -
MA:	[<xx>]	<unintelligible>
	En-en	Weep [an onomotopea for crying]
M:	.. En-en na no/	"Weep," you say?
	Ne/	(Do you thik) you're right?

[L1 Sample Data #3: Adult-**Young** child (Atchan) discourse]

When a two-year-old girl, Atchan (A) and her mother (M) were on their way to a park, the girl stopped walking and complained about a sore eye.

A:	Mushi, me ni haittchatta _	A bug in my eye
	... Ara ra ra ra _	Oh my goodness
M:	... Atchan no me chitchai kara	Your eye small eye attracted a
	& haita no kana /	bug, maybe?
	... (Checking her eye) haitte nai yo\	No bug
	.. Daicho-bu dayo_	You're alright
	.. Ne \	See
	(Point to the park in front)	
	... Nanka omoshiroi no ga aru yo= _	There's something interesting

[L1 Sample Data #4: Adult-**Older** child (Satchan) discourse]

A four-year-old girl, Satchan (S) was at a vegetable field with her mother (M) and the investigator (I), who were digging some spinach with other people.

M:	(Talking to a two-year-old boy in the group)	
	Yu-kun, mimizu shitteru /	Yu-kun, do you know earthworms?
I:	(Also addressing to the same child)	
	Mimizu suki= /	Do you like earthworms?
	Mimizu aru yo=/	We have earthworms here
S:	... Ooki _	Big
M:	.. Ooki-kunai _	Not so big
	Kabuto no ho= ga ooki katta yo ne= _	I think the beetle was much bigger
	... Mannaka motsu to iindayo _	You better hold its middle part
	Kono summikko dato nigechaukara	If you hold it just with its tip,
	& mannaka dato nigenaiyo \	it will come loose off your hand

[L1 Sample Data #5: Adult-**Older** child (Akkun) discourse]

A four-year-old boy, Akkun (AK), and the investigator's son were in Akkun's house. The children's mothers were chatting, when the investigator's son insisted on going home.

M:	Akkun, ^isshoni ne nanka `omocha	Akkun, you want to bring some
	& demo dashitekite mo iishi _	toys over here with (him)?
	.. Nanka --	Or what ..
	Akkun, ^hako .. toka tsukatte	Akkun, with a piece of box do
	& ` isshoni nanika tsukuru /	you want to make something?
	Soretomo ^buroku toka `otomodachi	Or, do you want to play with
	& to isshoni yaru /	legos with your friend?
I:	"Asobu" te kiitemite /	Can you ask him, "Do you want to play with me ?
AK:	(Looking at the investigator and pointing to the little dinosaur toys which the investigator's son had brought from home)	

	Uchini ne= annone= _	In my house, you know
	Koreyorine chotto ookiine kyoru aru	I have dinosaurs bigger than these.
M:	(0) Ja --	Then,
	Mottekite agete /	Why don't you bring them over here ?

DISCUSSION

L1 Input Analysis

The goal of the first data analysis was to compare two types of discourse data, adult-younger child interaction and adult-older child interaction, in order to find any significant differences between the two groups. My overall analysis suggests that the younger children received language bootstrapping (i.e., cues which make L1 linguistic patterns discernible) more often than the older children in terms of the following characteristics: 1) shorter intonation units with rising pitch at the end, and 2) more frequent use of bracketed utterances (e.g., sentences chunked by sentence-final tokens such as *ne*, *no*, *deshoo* and *dayo*).

For instance, as you can see in Sample Data #1, Yu-kun's adult interlocutors provided segments of small IUs marked especially with a particle *ne* in rising pitch. You may also notice the strong tendency of the grandmother's use of this input style. It is also self-evident that each IU with the particle *ne* is phrasal-bound. In other words, the grandmother "brackets" phrases with this particular sentence-final particle she preferred to use. The same style was also used by Yu-kun's mother as well as his grandmother's sister talking to the same child. After interviewing them, I found that Yu-kun's caretakers almost consciously spoke in small chunks to the child, because they think that "Yu-kun is still small, so you have to talk the way he would possibly comprehend." In Iwasaki's (1990) term, *ne* is an interpersonal word signaling the speaker's consciousness toward the listener. Therefore, I argue that these adults may have been using the particle to make the conversation more personable to this young child. Furthermore, the finding of *ne* in this corpus partly supports Clancy's (1987) claim for Japanese caretakers' empathy training by extensive use of *ne*, the positive affect marker in Japanese conversation.

Sample Data #3, Ma-kun's mother also employed small IUs, although she was more likely to use the particle *no* at the end of each IU. This particle was also uttered in rising pitch, as revealed in the data.

Compared with the input to these young children, the adults are more likely to use longer IUs and send complex messages such as teaching cause-and-effect, "If you do such and such, you will ...," as seen in Sample Date #4 & 5. Also, those adults spoke with less rising pitch at the end of each IU, unless the whole sentence was intended to be a question.

The observation of short IUs coincides with what Snow (1972) reported from her English data of mother-child conversations: the average input length used with two-year-olds was about 6.5 words, compared to 9.5 words addressed to ten-year-olds. Morgan also describes how caretakers tend to "bracket" input by phrases so that the language can be more discernible to young L1 learners. Furthermore, Snow (1977) claims that vocal interaction between mother and child is conversational by nature, since the input to two-year-old children in her English data is "largely directed towards keeping the conversation going" (p. 20). This may explain why those Japanese adults employed more rising intonation and interpersonal words such as *ne* and *no*, more frequently when interacting with the two-year-old children.

However, I found that the two age groups cannot be separated completely by means of the aforementioned traits. For instance, not all input addressed to the younger subjects contains only short IUs. In the case of Atchan's (a two-year-old) mother, shorts IUs are not always prevalent in her speech. As shown in Sample Data #3, the mother used this relatively longer utterance with her young daughter. In the total of 45 minutes of audio-recorded data,

Atchan's mother used speech of normal length several times, as if she were talking to an older child or another adult. After interviewing her, I also discovered that the mother had avoided using baby talk to the child, insisting on the importance of "talking to your own child naturally." Therefore, I have to admit that there is individual variation in the extent of L1 input modification given to the Japanese children of younger ages.

L2 Input Analysis

As for the L2 input to which the three-year-old nonnative speaker, Sai, was exposed, it was quite similar to the Japanese speech his cousin, Yu-kun, normally received: that is, input containing short IUs, with unique discourse devices such as the sentence-final particle *ne*, and rising pitch. During his 34 days of L2 exposure, Sai acquired a handful of nouns, verbs, and other vocabulary in Japanese. Table IV [Appendix I] shows groups of words and phrases Sai mastered at the productive level. He learned words related to vehicles, which were what interested him most. He also acquired verbal expressions in their basic form such as "kashite" (give me/ let me borrow) early on. However, he simply used a bare negative form "nai no" or "shinai no" to express negation in many other contexts. He was good at picking up some colloquial expressions commonly uttered by Japanese mothers and young children, such as "junban ne" (Take turns), and "dame" (It's no good/ Don't do that). On the other hand, he had difficulty figuring out how to appropriately use pragmatic expressions. For instance, instead of saying "tadaima" (I'm home), he often said "okaeri" (Welcome home), even if he was the one who just came home.

To my surprise, Sai could most productively use various sentence-final particles, such as *da* and *ne*, which are reported as difficult for adult learners of Japanese to master (Swayer 1992). He even combined English lexical words with these particles, and created phrases such as "At pogu da" (Here is a pug), and "kore iero= da" (This is yellow). Notice that adult speech addressed to either Yu-kun, the two-year-old Japanese boy, or Sai, the three-year-old L2 learner of Japanese, similarly contained many short intonation units typically chunked by sentence final particles. Therefore, I argue that it was probably easy for Sai to discern these final markers of IUs and to figure out the basic pattern "noun + sentence final particle." Importantly, Clancy (1985) reports that one of the items acquired by Japanese children quite early on is a set of sentence-final particles. Here again, I am convinced that there is a relationship between the type of input and Sai's acquisition in Japanese.

Sai's L2 interactional data [Appendix III] also shows that his L2 approach had shifted dramatically from ignoring L2 input or responding in his L1, English, to repeating the input or responding with his most familiar phrases in Japanese. Toward the end of his one-month stay in Japan, he became able to functionally interact with his own grandmother, Yu-kun (Sai's cousin), and Yu-kun's grandmother, as shown in his L2 data on June 13, 15, 20. Especially in the last week, Sai managed to initiate a conversation with a native Japanese speaker, being able to call attention and change the topic of discourse by himself.

CONCLUSIONS

This is a qualitative, discourse analysis for which all my discussion of findings is based mainly on the interpretation of the discourse data. Therefore, the word "frequency" is mentioned without any inferential statistics. Individual differences in Japanese L1 input are addressed as the result of my qualitative analysis. Had it been analyzed from a larger sample, individual variation in the use of particles and the length of IUs may have been diminished. Also, this study is limited in several ways. First, Sai's discourse data provides only a partial picture of his L2 acquisition: His ability of comprehension in Japanese has not been examined. Second, although Sai is an English-speaking child, due to his prior linguistic environment, his development of Japanese as an L2 cannot be quite equitable to that of other English-speaking children learning the same L2. Third, since this study involves the

comparison of only five child subjects, it is impossible to argue for any generalization regarding the relationship between Japanese L1 input modification and children's ages. A new investigation of Japanese adult-child conversations from a quantitative perspective is needed in the future.

However, this research has raised important questions concerning input phenomena surrounding early FLA and SLA. Is the variation in L1 input much greater for individual children, rather than for different age groups of children? If there is a large amount of variability in speech addressed to young children, input modification might not be a necessary guiding force in child language development. As for L2 input, suppose Sai benefited in his Japanese acquisition because of the shorter, segmented input, what would have happened if the same nonnative child had received normal, more adult-adult like input? Is speech modification necessary only in SLA, but not FLA, or vice versa? I hope that some well-designed studies of L1 and L2 input will respond to these questions in the future.

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[Appendix I: Tables I - IV]

Table I: Description of child subjects
(**L1** discourse data)

Children	Age	Sex	Siblings	Main social environment
Yu-kun	2;3	male	none	Stays home with his mother or grandmother
Atchan	2;4	female	none	Stays home with his mother
Ma-kun	2;9	male	none	Stays home with his mother
Satchan	4;4	female	two sisters	Stays home with his mother
Akkun	4;8	male	none	Goes to kindergarten

Table II: Description of adult interlocutors

Settings	Adult interlocutors
1) Adult-Young child (Yu-kun) Discourse	His grandmother (50s) and a relative (60s) (her sister)
2) Adult-Young child (Atchan) Discourse	Her mother (30s) and the mother's friend (30s)
3) Adult-Young child (Ma-kun) Discourse	His mother (30s) and father (40s)
4) Adult-Older child (Satchan) Discourse	Her mother (30s), the mother's friend (30s), and the investigator (30s)
5) Adult-Older child (Akkun) Discourse	Her mother (40s) and the investigator (30s)

Table III: Japanese speakers who interacted with the nonnative child, Sai
(**L2** discourse data)

Interlocutors	Age	Relationship to other interlocutors
S's mother	30s	
S's grandmother	60s	
S's grandfather	60s	S's grandmother's spouse
Yu-kun	2yrs	
Y's grandmother	50s	S's grandmother's younger sister
Y's mother	30s	S's mother's cousin
Y's father	30s	

Table IV: Sai's L2 (productive) acquisition data

Nouns: body parts, numbers, color items, bathroom terms, vehicles, etc.
Verbs: commands (e.g., ikou), past forms (e.g., dekita), negatives (e.g.,nai-no) etc.
Others: adjectives (e.g, oishii), sentence-final particles, pragmatic expressions, etc.

[Appendix II: Transcription convention by DuBois et al.]

Truncated Intonation Unit:		–
Pausing:		.. (short)
		... (long)
Overlap:		[ ]
Latching:		(0)

* It should be noted that DuBois et al. (1993) recommended that latching be marked "between the two speakers' turns" (p.63). Therefore, the lack of a noticeable pause between the two interlocutors is marked as latching at the beginning of an IU.

Unintelligible:		< xxx >
Laughter:		@
Speech with laughing quality:		< @ >
Pitch differences:	1) falling pitch	\
	2) level	–
	3) rising	/
Accent types:	1) primary accent	^
	2) secondary	`
Elongation of a vowel or consonant:		=
High booster (a higher-than-expected pictch on a word)		!

* The original version of DuBoir\s et al. system is more complex. However, for the purpose of readability, only relevant signals have been selected for this discourse data analysis.

[Appendix III: Sai's L2 discourse data]

May 23
(At the doorway, Sai was asked to see off Yu-kun.)

S's grandma:	Sai mo hora -	Here you go, Sai
	Ombushite Yu-kun o [okuteko]-	I'll carry you on the back to see off Yu-kun
Sai:	[No=]-	(English)
S's grandma:	.. Ombushite ikundesho/	I'll carry you outside
	.. Hora baibai surundatte-	to say goodbye
Y's mom:	.. Kondo Sai-chin ne-	Next time,
	Yu-kunchi kitene-	come to Yu-kun's house
Y's grandma:	.. Yu-kunchi kite datte hora -	You're just invited
	.. Yu-kunchi asobini ikundesho/	You'll go, won't you?
Sai:	(talking to his mother)	
	... I wanna stay [here] -	(English)
Y's grandma:	[Kondo] itsu Yu-kunchi ikoka/	When do you want to go?
	.. Hai hai -	Yeah -
	Sa iko -	Let's go.

March 25
(Sai and Yu-kun were going to a bookstore with some adults. Sai washed his hands at a fountain in the shopping mall.)

Sai:	(Talking to his mother)	
	I washed my hands -	(English)
S's mom:	.. A= [iina]	Good.
S's grandma:	[Sai] hora ikko-	Sai, we'll go.
Yu-kun:	... Ikuyo=-	Let's go.
Sai:	.. Ikuyo=-	Let's go.
(Yu-kun hid in a bush.)		
Sai:	Bye Yu-kun -	(English)
(Yu-kun was still hiding there.)		
	.. There are monsters -	(English)
	.. Monsters -	

March 28
(Sai was in the car with his mom, Yu-kun and his parents.)

Y's mom:	(spotting a train passing by) ! At --	Look!
	Densha densha -	Here comes a train.
Yu-kun:	.. Babai -	Good-bye.
Sai:	(0)What --	(English)
S's mom:	(0) Densha -	Train.
Sai:	.. What's "densha"/	(English)
S's mom:	.. Train -	(English)
Yu-kun:	.. Densha -	Train.
S's mom:	.. Densha-	
Yu-kun:	.. Gatan gatan -	
Sai:	... Where's "densha"/	(English)
	.. Up --	
	Up on the bridge/	

June 1
(Sai and Yu-kun were playing with S's mom.)

Yu-kun:	Chushaken-	Parking ticket.
S's mom:	.. Hai chushaken ne dozo -	Here is a parking ticket for you.

Sai:	.. Dozo -	Here is . (repetition)
S's mom:	... Hai haratte kudasai -	Please pay.
	.. Hai chushaken dashite kudasai -	Please show your ticket.
Sai:	.. Choo-cho -	(English)
Yu-kun:	... Chushaken -	(Here is my) parking ticket.
	(showing a piece of toy as a ticket)	

June 3 (At the zoo.)

Yu-kun:	Kirinsa=n -	Giraffe.
	..Kirinsa=n-	
Y's mom:	<xx>	
	... Inai ne -	No giraffe.
Y's mom:	.. Inai /	No.
	<x x x > Iruno /	< x x> are there?
Sai:	(0) Zou -	Elephant
Yu-kun:	.. <xx > nette irruno /	< x x> asleep?
S's mom:	.. Are zo janaino -	That's not an elephant.
	.. Are baku -	That's a tapir.
	... Kore baku dayo -	It's a tapir, see?
	B^ak`u -	Tapir
Sai:	.. B`ak^u	

June 5
(S's grandma was teaching Sai names of colors in Japanese, using colored pieces of blocks.)

S's grandma:	Dore /	Which one?
	Doko shiro /	Which one is white?
	Um --	
	Shiro ne=/	That's white.
	Sh^ir`o -	White.
Sai:	.. Sh`ir^o -	
S's grandma:	(0) Um --	
	Kore wa /	How about this one?
	.. Kore wa /	
Sai:	(no response)	
S's grandma:	... Kiiro -	Yellow.
Sai:	.. Kiiro -	
S's grandma:	.. Kiiro -	
Sai:	.. ! Kiiro -	
S's grandma:	(0) Ne /	Right
	(pointing to a different block)	
	Korewa shiro -	This is white.
Sai:	... Shiro -	White.
S's grandma:	(0) Ne/	Right.
	Sai no oyoufuku ga kiiro -	You wear yellow.
	< x x > Kiiro -	Yellow.
	(pointing to a different one)	
	.. Ne shiro -	White.
	Shiro -	White.
	Ne /	Right.
Sai:	.. ! Shiro -	White.
S's grandma:	.. Aka -	Red.
Sai:	.. Aka -	
S's grandma:	(0) Ne /	You're right.
	.. Um /	
	Sore wa awo -	That's blue.
Sai:	.. Awo -	Blue.

S's grandma:	(0) Ne /	Right.

June 9
(Sai was helping Y's grandmother to make bed.)

Y's grandma:	Futon ne -	Bed
	Hai hai shikimasu yo -	I'll make.
	.. Hai kore mamasun ni motteki na\	Bring it to your mom.
	.. Mamasun ni "tsukau" tte -	Ask her, "Wanna use it?"
Sai:	.. Tsukau -	Wanna use it? (repetition)
Y's grandma:	.. Ne ja --	Well.
	Ofuton ne /	Your bed.

June 13
(Sai and Yu-kun were playing together in the living room.)

Yu-kun:	(passing a toy to Sai) Hai -	Here you go.
Sai:	.. Ka= Yu-kun /	Car, Yu-kun.
	.. Ka= tsukau Yu-kun /	Wanna use a car?
Yu-kun:	(receiving the toy car) .	
	.. Ajijido (i.e., Arigato) -	Thanks.
Sai:	.. Ajijito -	(repeating Yu-kun)
	... ! Ari-g^a-to -	(correcting Yu-kun's pronunciation)
Yu-kun:	(No response)	
Sai:	... Chigau "Ajijito" -	It's not "Ajiito"
	! Ari-g^a-to -	(You should say) "Arigato"

June 15
(Sai came out of the bathroom. Being constipated, he was frowning.)

S's grandma:	Sai kokoe suwanna-	Sit here.
	Yu-kun to naran de \	Next to Yu-kun.
	.. Koko oide\	Come here.
Sai:	... Shinai no -	I don't want to.
S's grandma:	.. Yana no -	You don't?
	(talking to Y's grandma) ..	
	Yannan datte \	He doesn't want to.
Y's grandma:	(talking to Sai) .. Nande /	Why not?
	.. Mo imma pakke=ji motte kuru yo -	Your mom will be back soon.
	... Sai-niichan orikousan dakara sa= -	Because you're a good boy.
	... Yu- --	
	A= --	
	"Sai-chin" te kaettekuru yo -	"Sai-chin", your mom will say.

June 18
(Sai and Yu-kun were watching a morning TV show.)

S'grandma:	Sugoina= -	Cool.
	Tomasu ga hashitteru -	Thoman is running.
	.. Tomasu ga -	
Yu-kun:	.. Tomasu /	
Sai: (to TV)	(0) Ohayo= -	Good morning.
	.. Ohayo= -	
Y's grandma:	(echoing Sai) .. Ohayo= -	

June 20

(Sai and Yu-kun were playing with a train set. One of the train went off the track.)

Sai:	Shushu po shushu po shushu po --	(onomatopoeia in Japanese)
	... Kowashichatta=-	I broke it.

(Sai put the train back on the track, but the train go derailed again and run over Yu-kun's foot.)

Sai:	D^aicho=b`u /	Are you OK?
Yu-kun:	(no response)	
Sai:	... D^aicho --	

(putting the train back on the track again)

	... Kinkon kankon kinkon kankon kinkon kankon	(onomatopoeia)
	Kinko=n kank=n	
S's grandma:	..Kinkon kankon -	
Sai:	.. Hashire= -	Run fast.
	hashire= -	Run fast.
	At--	Look.
	Tomika da -	It's Tomika
	(talking to Yu-kun) At--	Look.
	! Nanda /	What's that?
	.. Nanda /	
Yu-kun:	... Nanda -	

June 21

(S's grandma was picking up the room, where Sai had made a mess. Sai grabbed a toy garbage truck she just put away.)

S's grandma:	Sekka ku --	I just put
	.. Sekka ku shimatta--	them away.
	(looking at other cars she had put away in a box)	
	At --	
	Iina= -	Cool.
	... Ippaimotten ne=/	You've got a lot.
	Basu -	Bus.
	.. Kore wa /	What's this?
	.. Kore wa nani /	
Sai:	.. Gabetzi torakku -	Garbage truck.
S's grandma:	(0) Huh /	
Sai:	(0) Gabetzi -	
S's grandma:	.. Nani /	What?
Sai:	(showing her a label of the truck)	
	.. Kotch^i kotch^i -	Look here
	.. Kotch^i --	
S's grandma:	(0) Um misite /	Show me.
	.. Dore /	Where?
	.. Dore misite /	Show me where.
	(holding the label of the truck close to the eyes)	
	... O= sugoina= -	Great.
Sai:	.. Kotchi -	This one.
S's grandma:	(0) To=kyo=to --	Tokyo
	@@	
	O= sugoi sugoi -	Cool.
	.. At --	Look.
	Kotchikara gomiga derunda -	It has garbage here, huh?
	... He=--	
	sugoine=-	Cool.
Sai:	(0) Kotchi--	
	Kotchi nai -	I don't have this one.
S's grandma:	.. Ippaida ne=-	A lot, isn't it?

	.. Sai kokoni haittetano wa	Where did you put the one which
	doshita no/	was in here before?
	Koko /	Here?
Sai:	Nai \	I don't have it.
S's grandma:	Nai no /	You don't ?
Sai:	Kotchi nai -	I don't have this one.

June 24
(At the breakfast table. Sai and Yu-kun were sitting next to each other.)

Sai:	Ta=beta [tabeta] -	I ate it, I ate it.
S's mom:	.. <x x >	
Yu-kun:	(0) Kotchi taberu no -	I want to eat this.
	Sai-chin tabeta -	Sai ate it.
Y's mom:	.. Tabeta /	
	.. Erai [ne=] -	He's good.
Yu-kun:	[Yu-]kun -	Yu-kun,
Y's mom:	.. Yu-kun mo tabeta ne=-	Yu-kun ate it, too.

June 25
(Sai was in the car with his grandma, his mother, Yu-kun, Y's grandma, and Y's parents on his way to the airport.)

Sai:	Chiichan -	Chiichan?
Y's grandma:	.. Hai -	Yes?
	.. Hai -	
	... Nani /	What is it?
Sai: (standing up)	.. See /	(English)
	Takai -	I'm tall.
Y's grandma:	.. Wa= Takai ne =-	Yes, you're tall.
	.. O= onii-chan dane =-	You're a big boy.